

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001-NM-232-AD; Amendment 39-13259; AD 2003-16-06]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747 Series Airplanes Equipped with General Electric CF6-45 or CF6-50 Series Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to all Boeing Model 747 series airplanes equipped with General Electric CF6-45 and CF6-50 series engines. This amendment requires an inspection to detect chafing of the fuel line or incorrect clearance between the fuel line and pneumatic duct insulation blanket; a fuel leak check and strut drain test; corrective action if necessary; replacement of the outboard strut fuel line coupling O-rings and retaining rings with new parts; replacement of the pneumatic duct boot with a new part; and, for certain airplanes, installation of a flame arrestor and drain line entry screens. The actions specified by this AD are intended to prevent leaking fuel line couplings, chafed fuel lines, restricted or clogged strut drain lines, migrating fluids or vapors toward ignition sources, and flashback of external flame into the strut; these conditions could result in an uncontained engine strut fire. This action is intended to address the identified unsafe condition.

DATES: Effective September 12, 2003. The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of September 12, 2003.

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Dan Kinney, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 917-6499; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to all Boeing Model 747 series airplanes equipped with General Electric CF6-45 and CF6-50 series engines was published in the Federal Register on January 29, 2003 (68 FR 4398). That action proposed to require an inspection to detect chafing of the fuel line or incorrect clearance between the fuel line and pneumatic duct insulation blanket; a fuel leak check and strut drain test; corrective action if necessary; replacement of the outboard strut fuel line coupling O-rings and retaining rings with new parts; replacement of the pneumatic duct boot with a new part; and, for certain airplanes, installation of a flame arrestor and drain line entry screens.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Request To Correct Service Bulletin Citations

Two commenters state that there are typographical errors in two of the service bulletin citations specified in the section in the preamble titled "Explanation of Relevant Service Information." The first commenter states that the reference to Boeing Service Bulletin 747-28-2155 should be 747-71-2155. The second commenter states that the reference to Boeing Service Bulletin 747-36-2122 should be 747-54-2122. While the FAA agrees with these corrections and acknowledges that the service bulletin citations were incorrect in the proposed AD, that section of the preamble is not restated in the final rule.

Request To Clarify Certain Paragraphs

One commenter asks that paragraph (e) of the proposed AD be changed, for clarification, to add that the fiberglass fabric pneumatic duct boot is replaced with a new, NOMEX fabric duct boot. We agree and have added the language requested by the commenter to paragraph (e) of this final rule.

The same commenter asks that paragraphs (b) and (f) of the proposed AD be changed, for clarification, to add the term "outboard" to define which strut is affected by those paragraphs. We agree and have added the term requested by the commenter to paragraphs (b) and (f) of this final rule.

Replace Pneumatic Boot Only if Damage Found

One commenter states that it performs the repetitive detailed visual inspections of the pneumatic duct boot at every 1C-check, with replacement of the duct boot if it is damaged. The commenter asks that it be allowed to continue to perform the inspections at every 1C-check, and replace the duct boot only if damaged, instead of replacing the duct boot at the time specified in paragraph (e) of the proposed AD. The commenter asks that its program be included as an alternative method of compliance (AMOC) to the proposed AD, if possible.

We do not agree with the commenter. Early replacement of the original boot configuration with a NOMEX boot is critical to having a reliable seal in place. The flight-hour intervals used for maintenance checks may not ensure replacement of the original boot within 12 months. However, if maintenance records indicate that the original boot has been replaced with the new NOMEX fabric part, it is not necessary to repeat that action. Paragraph (e)(2) of this final rule is a continuing requirement which specifies that whenever a damaged boot of the original boot configuration is found it must be replaced before further flight, or within 5 days following detection if there are no leaks. The commenter may submit substantiating data that support a request for an AMOC per paragraph (i) of this AD. No change to the final rule is necessary in this regard.

Request To Change Compliance Time

Two commenters ask that the compliance time for the repetitive replacement of the O-rings and retaining rings, as specified in paragraph (d) of the proposed AD, be changed, as follows: One commenter states that it performs the repetitive replacement of the O-rings and retaining rings every 5 years.

We infer that the commenter wants to continue the replacement every 5 years, in lieu of the compliance time of every 21,000 flight hours or 5 years, whichever is earlier (unless a coupling is disassembled).

The same commenter states that it performs the fuel pressure leak check every 5 years when it replaces the O-rings and retaining rings, and would like to be allowed to continue at that interval in lieu of the 3-year interval specified in Boeing Service Bulletin 747-28-2230, dated September 30, 1999 (referenced in the proposed AD as the source of service information for accomplishment of the fuel leak check and strut drain inspection).

We acknowledge that the service bulletin specified recommends repeating the leak check every 3 years; however, the proposed AD does not require repetitive fuel pressure leak checks; only a one-time check within 12 months after the effective date of the AD.

Another commenter states that it performs the repetitive replacement of the O-rings and retaining rings during its D-check, and asks that all operators be allowed to perform the replacement at that time. The commenter also provides some statistics on cases of fuel leakage found and the corrective actions taken; and noted that there were more fuel leaks that occurred after maintenance of the fuel line coupling O-rings if specially trained mechanics did not do the maintenance, due to the necessity of using delicate installation procedures that are specific to that type of couplings.

We do not agree with the requests to extend the compliance time. The chronological age of the O-rings combined with flight hours produces the deterioration and fuel leaks. With regard to extending the compliance time to allow the replacement to be accomplished at a D-check or every 5 years, we have already considered factors such as operators' maintenance schedules in setting a compliance time for the required replacement and determined that 21,000 flight hours or 5 years, whichever is earlier (unless a coupling is disassembled), is an appropriate compliance time in which the replacement may be accomplished during scheduled airplane maintenance for the majority of affected operators. Since maintenance schedules vary from operator to operator, it would not be possible to guarantee that all affected airplanes could be modified during scheduled maintenance. In any event, we find that the specified compliance time represents the maximum time wherein the affected airplanes may continue to operate without compromising safety. No change to the final rule is necessary in this regard.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Changes to 14 CFR Part 39/Effect on the Proposed AD

On July 10, 2002, the FAA issued a new version of 14 CFR part 39 (67 FR 47997, July 22, 2002), which governs the FAA's airworthiness directives system. This regulation now includes material that relates to altered products, special flight permits, and AMOCs. Because we have now included this material in part 39, only the office authorized to approve AMOCs is identified in each individual AD. However, for clarity and consistency in this final rule, we have retained the language of the NPRM regarding that material.

Change to Labor Rate Estimate

We have reviewed the figures we have used over the past several years to calculate AD costs to operators. To account for various inflationary costs in the airline industry, we find it necessary to increase the labor rate used in these calculations from \$60 per work hour to \$65 per work hour. The cost impact information, below, reflects this increase in the specified hourly labor rate.

Cost Impact

The following table provides the cost estimates to accomplish the required actions:

Boeing service information for required actions	Work hours per airplane	Hourly labor rate	Parts cost per airplane	Per- airplane cost	Number of U.S. airplanes affected	U.S. fleet cost
Service Bulletin 747-36-2111	10	\$65	\$0	\$650	32	\$20,800
Service Bulletin 747-28-2230	4	65	0	260	32	8,320
Service Letter 747-SL-28-052-B	4	65	0	260	32	8,320
Service Bulletin 747-36-2118	10	65	1,269	1,919	32	61,408
Service Bulletin 747-54-2137	48	65	3,047	6,167	30	185,010
Service Bulletin 747-54-2122	56	65	2,590	6,230	30	186,900

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

Regulatory Impact

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC



U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "www.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2003-16-06 Boeing: Amendment 39-13259. Docket 2001-NM-232-AD.

Applicability: Model 747 series airplanes equipped with General Electric CF6-45 or CF6-50 series engines, certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (i) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent leaking fuel line couplings, chafed fuel lines, restricted or clogged strut drain lines, fluids or vapors migrating to ignition sources, and flashback of external flame into the strut, which could result in uncontained engine strut fire, accomplish the following:

Inspection for Chafing and Clearance

Note 2: Paragraph (a) of this AD refers to certain portions of Boeing Service Bulletin 747-36-2111, dated February 20, 1992, for information regarding inspection and measurement actions. Further, paragraph (a) of this AD requires replacement of the fuel tube as corrective action for certain repair conditions; that action is not included in the service bulletin. Where this AD and Service Bulletin 747-36-2111 differ, the AD prevails.

(a) Within 1,000 flight hours after the effective date of this AD, perform a detailed inspection to detect chafing of the fuel line and measure the clearance between the fuel line and the insulation blanket on the pneumatic duct, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 747-36-2111, dated February 20, 1992. Before further flight, accomplish all applicable corrective actions (including reworking the fuel line, remeasuring the clearance between the fuel line and the insulation blanket, adjusting the pneumatic duct and fuel line positions, adjusting the insulation blanket installation, and inspecting and cleaning the strut and strut drain ports/screens); and, if applicable, repeat the fuel line inspection at the applicable time in the Accomplishment Instructions of the service bulletin. Do the corrective and follow-on actions in accordance with Service Bulletin 747-36-2111. If, after corrective actions have been performed, a clearance of at least 0.40 inch on the number 4 strut cannot be achieved: Before further flight, replace the fuel tube with a new part in accordance with Boeing Service Bulletin 747-28-2162, dated July 30, 1992.

Note 3: For the purposes of this AD, a detailed inspection is defined as: "An intensive visual examination of a specific structural area, system, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at intensity deemed appropriate by the inspector. Inspection aids such as mirror, magnifying lenses, etc., may be used. Surface cleaning and elaborate access procedures may be required."

Fuel Leak Check and Outboard Strut Drain Inspection

(b) Within 12 months after the effective date of this AD, perform a fuel pressure leak check of the fuel line in the outboard strut area, and perform an outboard strut drain test for the aft strut drain tubes to detect blockage; in accordance with the Accomplishment Instructions of Boeing Special Attention Service Bulletin 747-28-2230, dated September 30, 1999. If any discrepancy is found, before further flight, perform applicable corrective actions (including performing the fuel pressure check procedure, clearing the strut drain tubes, and repairing seal leaks) in accordance with the service bulletin.

Replacement of O-Rings and Retaining Rings

(c) At the earliest of the times specified by paragraphs (c)(1), (c)(2), and (c)(3) of this AD, replace the fuel line coupling O-rings and retaining rings in the outboard strut positions with new Nitrile O-rings, part number MS29513-330, in accordance with Boeing Service Letter 747-SL-28-052-B, dated August 30, 1998. Replace the rings thereafter at the time specified by paragraph (d) of this AD.

- (1) Within 21,000 flight hours after the effective date of this AD.
- (2) Within 5 years after the effective date of this AD.
- (3) Before further flight after a coupling has been disassembled for any reason.

Repetitive Ring Replacement

(d) Replace the rings as required by paragraph (c) of this AD at intervals not to exceed the earliest of the times specified by paragraphs (d)(1), (d)(2), and (d)(3) of this AD.

- (1) Every 21,000 flight hours.
- (2) Every 5 years.
- (3) Before further flight after a coupling has been disassembled for any reason.

Replacement of Pneumatic Duct Boot

(e) At the earlier of the times specified in paragraphs (e)(1) and (e)(2) of this AD: Replace the fiberglass fabric pneumatic duct boot with a new NOMEX fabric part, in accordance with Boeing Service Bulletin 747-36-2118, dated January 28, 1993.

- (1) Within 12 months after the effective date of this AD; or
- (2) Before further flight following detection of any torn boot; or within 5 days following detection of any torn boot, provided there are no leaks, liquid fuel, or vapors in the affected strut compartment.

Installation of Flame Arrestor

(f) For airplanes identified in Boeing Service Bulletin 747-54-2137, dated February 6, 1992: Within 24 months after the effective date of this AD, install a flame arrestor in each aft condensate drain hole of the outboard engine struts, in accordance with the Accomplishment Instructions of the service bulletin.

Installation of Drain Screen

(g) For Group 2 and Group 4 airplanes listed in Boeing Service Bulletin 747-54-2122, Revision 4, dated August 29, 1991, as revised by Notice of Status Change 747-54-2122 NSC 2, dated May 14, 1992; and Information Notice 747-54-2122 IN 03, dated August 19, 1999: Within 24 months after the effective date of this AD, install a drain line entry screen at each drain tube entry at the outboard strut positions, in accordance with the Accomplishment Instructions of the service bulletin. Where the service bulletin specifies that certain actions may be accomplished in accordance with an operator's "equivalent procedure": Those actions must be accomplished in accordance with the applicable Boeing 747 Airplane Maintenance Manual subject specified in the service bulletin.

(h) Installation of drain screens before the effective date of this AD is also acceptable for compliance with the requirements of paragraph (g) of this AD if accomplished in accordance with Boeing Service Bulletin 747-54-2122, Revision 1, dated December 14, 1989; Revision 2, dated May 3, 1990; or Revision 3, dated October 4, 1990.

Alternative Methods of Compliance

(i) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

Note 4: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

Special Flight Permits

(j) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

Incorporation by Reference

(k) Unless otherwise specified in this AD, the actions shall be done in accordance with Boeing Service Bulletin 747-36-2111, dated February 20, 1992; Boeing Service Bulletin 747-28-2162, dated July 30, 1992; Boeing Special Attention Service Bulletin 2 747-28-2230, dated September 30, 1999; Boeing Service Letter 747-SL-28-052-B, dated August 30, 1998; Boeing Service Bulletin 747-36-2118, dated January 28, 1993; Boeing Service Bulletin 747-54-2137, dated February 6, 1992; and Boeing Service Bulletin 747-54-2122, Revision 4, dated August 29, 1991, as revised by Notice of Status Change 747-54-2122 NSC 2, dated May 14, 1992, and Information Notice 747-54-2122 IN 03, dated August 19, 1999; as applicable.

This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

Effective Date

(l) This amendment becomes effective on September 12, 2003.

Issued in Renton, Washington, on July 31, 2003.

Ali Bahrami,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 03-19981 Filed 8-7-03; 8:45 am]

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